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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/840,558	04/23/2001	Robert L. Gerlach	F070	4812
25784	7590	01/11/2005	EXAMINER	
MICHAEL O. SCHEINBERG P.O. BOX 164140 AUSTIN, TX 78716-4140			GURZO, PAUL M	
			ART UNIT	PAPER NUMBER
			2881	

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/840,558

Applicant(s)

GERLACH ET AL.

Examiner

Paul Gurzo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-22, 26-28, 30 and 32-34 is/are allowed.
- 6) ☒ Claim(s) 23, 24, 29 and 35 is/are rejected.
- 7) ☒ Claim(s) 25 and 31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 23, 24, 29, and 35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Todokoro et al. (6,114,695).

Regarding claims 23 and 24, 695 teaches a scanning electron microscope comprising a primary electron beam column for forming a primary electron beam and scanning the beam across a specimen surface to cause the emission from the specimen (102) of secondary electrons, the primary electron beam column including a high resolution objective lens (118) a secondary electron optical system for collecting the electrons through the objective lens (118), and a detector/analyzer (124) for analyzing the electrons (col. 15, lines 20-60, col. 18, lines 44-48, and Fig. 21). They do not explicitly teach a deflector for deflecting the secondary electrons from the path of the primary beam without significantly degrading the resolution of the primary beam, but Fig. 21 clearly depicts the secondary electrons (105b) traveling in a path back up through the objective lens (118) and away from the primary beam. They also teach that the objective lens immerses the specimen in a magnetic field and voltage application (col. 15, lines 49-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to deflect the secondary electrons to the desired means to ensure that the primary electron beam is unaffected and the secondary beams are indicative of the specimen surface.

Regarding claim 29, 695 teaches a scanning electron microscope comprising a primary electron beam column for forming a primary electron beam and scanning the beam across a specimen surface to cause the emission from the specimen (102) of secondary electrons, the primary electron beam column including a high resolution objective lens (118) a secondary electron optical system for collecting the electrons through the objective lens (118), and a detector/analyzer (124) for analyzing the electrons (col. 15, lines 20-60, col. 18, lines 44-48, and Fig. 21). They do not explicitly teach a deflector for deflecting the secondary electrons from the path of the primary beam without significantly degrading the resolution of the primary beam, but Fig. 21 clearly depicts the secondary electrons (105b) traveling in a path back up through the objective lens (118) and away from the primary beam. Further, they teach the fine resolution as stated above and state that the image displaying technique is achieved through high resolution observations (col. 3, lines 14-18 and col. 6, lines 9-11). Therefore, the resolution of the primary beam will not be degraded.

Regarding claim 35, 695 teaches a scanning electron microscope comprising a primary electron beam column for forming a primary electron beam and scanning the beam across a specimen surface to cause the emission from the specimen (102) of secondary electrons, the primary electron beam column including a high resolution objective lens (118) a secondary electron optical system for collecting the electrons through the objective lens (118), and a detector/analyzer (124) for analyzing the electrons (col. 15, lines 20-60, col. 18, lines 44-48, and Fig. 21). They do not explicitly teach a deflector for deflecting the secondary electrons from the path of the primary beam without significantly degrading the resolution of the primary beam, but Fig. 21 clearly depicts the secondary electrons (105b) traveling in a path back up through the

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objective lens (118) and away from the primary beam. In addition, the analyzer (124) must have an entrance for the secondary electrons. Further, it is obvious that will be converged near the entrance of the secondary electron analyzer so that the image of the Auger electrons is achieved because Fig. 21 clearly shows the secondary electrons (105b) focused at the entrance of the detector/analyzer (124).

***Allowable Subject Matter***

Claims 1-22, 26-28, 30, and 32-34 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

With respect to the independent claim 1, as claimed invention was read in light of the specification, the prior art of record fails to teach the claimed use of an electrostatic capacitor as well as a shield that is conductive on the inside to shield the primary beam and having a potential gradient on the outside to create an external field related to the electric field of the electrostatic capacitor to reduce distortion of the field of the capacitor caused by the shield. With respect to independent claim 8, 26, and 27, as claimed invention was read in light of the specification, the prior art of record fails to teach analyzing Auger electrons, rather they at most analyze reflected electrons, not Auger electrons. With respect to independent claims 10 and 11, as claimed invention was read in light of the specification, the prior art of record fails to teach a shield that shields the primary beam from the field and that is conductive on the inside and resistive on the outside to maintain a potential gradient on the outside corresponding to the field of the deflector. With respect to the independent claims 20 and 22, as claimed invention was read in light of the specification, the prior art of record fails to teach the collection efficiency being greater than twenty percent for Auger electrons having an energy of 100 eV or a resolution finer than 5 nm

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and energies between 3keV and 30 keV. With respect to the independent claim 27, as claimed invention was read in light of the specification, the prior art of record fails to teach forming an image of the virtual Auger source off the path of the primary beam using an electrostatic capacitor. In addition, the prior art does not teach the use of a magnetic field generating coil, electrostatic deflection plates, movable pole pieces, spherical capacitor, snorkel or magnetic lens, or sample movement.

Claims 25 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record fails to teach or render obvious the use of a shield or spherical capacitor analyzer.

### ***Response to Arguments***

Applicant's arguments, filed 12/9/04, with respect to claims 8, 9, 20, 21, 26, 28, and 32-34 have been fully considered and are persuasive. The rejection of these claims has been withdrawn.

Applicant's arguments, filed 12/9/04, with respect to claims 23, 24, 29, and 35 have been fully considered but they are not persuasive. Applicant argues that the prior art does not teach an energy analyzer. However, 695 teaches that secondary electrons (105b) are detected by a secondary electron detector (124) constructed of a scintillator and a photomultiplier tube so as to be converted into an electrical signal. The electrical signal is amplified and then modulated in brightness by means of a signal amplifying/processing unit (125) to produce a specimen image, which is displayed on a display (126) (col. 15, lines 49-57). The energy of the secondary electrons must be known so that a precise electrical signal and image display can be achieved.

Therefore, for this to occur, the electron energies must be determined and analyzed at some point after they are detected by the secondary electron detector (124).

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Gurzo whose telephone number is (571) 272-2472. The examiner can normally be reached on M-Fri. 7:30 - 6:00.

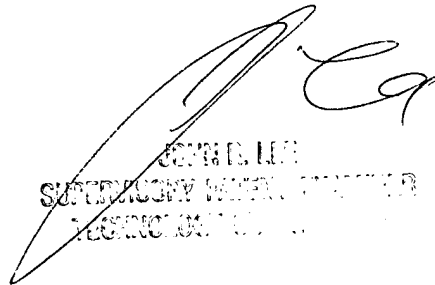
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached at (571) 272-2477. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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